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EXAMINER

WOODS, ERIC V

ART UNIT PAPER NUMBER

2672

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,539

Applicant(s)

TOYAMA ET AL

Examiner

Eric Woods

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 36-42, 44 and 45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 36-42, 44 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-15, 37-42, and 44-45 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to the rejection of claim 44 under 35 U.S.C. 112, first and sixth paragraphs, have been fully considered but are not found to be persuasive. While applicant's specification may say in very vague terminology that the system may be implemented on a computer, applicant has not fulfilled their burden to fully disclose how such an implementation would operate. Further there is nothing in the drawings and/or requisite flowcharts to illustrate the programming techniques to one of ordinary skill in the art how to implement the claimed invention. Objections to the drawings have been added to deal with that situation.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means in claims 44 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first and sixth paragraphs of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Claim 44 is rejected under 35 U.S.C. 112, first and sixth paragraphs, because the specification, while being enabling for causing a computer to construct a high dynamic range image with a background image and a portion of said image corresponding to one or more regions, does not reasonably provide enablement for the other steps, namely receiving high dynamic range information, receiving region of interest information or displaying said image. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

invention commensurate in scope with these claims. Namely, the system recites software which does provide, in of itself, any means that would allow a computer to perform the recited operations, namely receiving files and obtaining user input to implement user selection of a region of interest, are known to prima facie require some sort of computer hardware (e.g. see claim 1 as evidence to this effect). A claim reciting software performing acts on a computer that require user interfaces and actions that recites "means" to invoke the protection of 35 U.S.C. 112, sixth paragraph, cannot evade the requirement that the specification must provide reasonable antecedent basis for such recitations and support their enablement (Wolfensperger, 302 F.2d at 955, 133 USPQ at 542).

Further, the mere recitation that a computer program is to make a computer execute certain steps that prima facie require user intervention (as stated above it is known prima facie that such steps require a computer that has certain components (e.g. display and input devices)) does not excuse the claim from setting forth the fact that a "computer per se" would not be adequate to perform the stated task; the other, essential elements are not present, and applicant has admitted in the specification that such components are essential to the practice of the invention. In reciting "means" in a software only claim, applicant does not get the implied coverage that a method claim provides, since an apparatus claim, which a claim to a computer program product is (under current court and legal doctrine), must explicitly set out all essential components.

Also, claim 44 stands rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure that is not enabling. Elements critical or essential to the practice of the

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invention, but not included in the claim(s) are not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976), and the reasoning in the immediately preceding paragraph.

In order to traverse the first rejection, applicant is **required** to amend the specification pursuant to 37 CFR 1.75(d) to explicitly state what structures, materials, or acts described in the specification and their equivalents thereof (see MPEP 2181, subsection IV).

In order to traverse the second rejection, applicant is required to point out support in the specification for a claim that a computer lacking those key components could in fact act as the recited 'means' in claim 44 for such a computer program. Further, the burden is on applicant to prove that the claim scope of claim 44 is such that it does not in fact lack essential steps for the reasons set forth above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 8-10, 14-15, 38, 40, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwin et al (US 5,818,975 A1) in view of Photoshop.

As to claims 1 and 44,

In a computer system, a method of displaying high dynamic range digital images on a display, the method comprising: (Preamble is not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps and/or apparatus components are capable of standing on their own; see *Rowe v. Dror*, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Receiving high dynamic range image information, wherein the high dynamic range image information defines a high dynamic range image; (Goodwin clearly teaches in the Abstract a digital image having a dynamic range representing a brightness level in an original scene greater than the dynamic range of an output medium, which is prima facie a "high dynamic range" image (1:65-2:10 additionally).)

-Receiving region of interest information, the region of interest information defining one or more regions of the high dynamic range image; (In Goodwin, the user designates regions within the image that have a given threshold, where the portion of the image is chosen, as in Figure 7, where the outline region is shown, and in Figure 8 the selected region is processed as indicated by the user. See 4:45-5:40. Further, the user clearly indicates a region of interest (e.g. a rectangle), as in 10:54-67 and 5:40-50. Clearly, these regions constitute a portion of the high dynamic range image.)

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- Displaying a derived image comprising: (See Goodwin Figure 8 and Figure 6. The multiple ranges are processed to converge them to one output image, which is shown to the user as in Figure 25, 8:22-35, and the like)
- A background image constructed from the high dynamic range image information; and (Goodwin 7:60-8:23 – basically, one region of the image could be within the dynamic range of the input device and thusly would not have to be adjusted, but rather the overall final adjustment between the selected portions in the mask portions would be adjusted relative to the background image)
- One or more portions of the high dynamic range image corresponding to the one or more regions, the one or more portions of the high dynamic range image displayed in accordance with at least one display parameter that differs from a corresponding display parameter for the background image. (Goodwin clearly shows in Figures 6-8 and states clearly as noted above, that the user can adjust the parameters of the selected (rectangular) region as in Figure 7, such that it is displayed in accordance with the at least one display parameter that differs from the corresponding display parameter for the background image. This would clearly meet the limitations of this portion of the claim).

It is notoriously well known in the art of image editors, such as Adobe® Photoshop™, to display a background image and allow a user to select a region within it. Further, such photo editors are trivially well known in the art – the example of Photoshop is cited above, while Microsoft Office has come with a Photo Editor since 1991 (if a user clicks on the About window, it shows as copyright 1991-1998, which

clearly proves a date of conception at least five years before applicant's invention).

Furthermore, in Figure 1-6 of Photoshop, a dashed box is shown where a user selected a region. This functionality is again trivially well known, and the user can clearly select multiple regions.

Further, it would be obvious that since Photoshop teaches selecting a region as set forth above and altering its contents (for example, via applying a filter – see pages 360-390 for various types of filters) to allow the viewing of the region based on maximum and minimum chrominance or luminance or exposure value (Photoshop pages 305-307 clearly describe how chrominance and luminance can be manipulated in various color spaces that Photoshop can work with).

Goodwin teaches most of the limitations of the above claims, but does not expressly teach that the derived image has the one or more portions that is altered, since Goodwin typically teaches that the system has two ranges where **both** are outside of the dynamic response capabilities of the output medium, so it does not expressly teach that the background image is not adjusted, although this clearly is fairly suggested because the user can select a rectangular to be adjusted wherein the constituent components of the region may be forced to be adjusted. Obviously, this leads to the conclusion that the rest of such image would not necessarily be adjusted. Goodwin further teaches the displaying of a resultant, derived issue as noted above.

Photoshop clearly teaches having a background region and then only altering the selected region. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goodwin to allow the user to only adjust one of the

two selected regions and then to still allow the global balance adjustments to make the image appear seamless and correct. The resultant method would in fact perform all the steps of the method and generated the same result. Further, the combination would facilitate cases where only one portion of the range fell outside the capabilities of the output device, and it is well known to allow the user to adjust only a portion of the image, where the rectangular regions of both Goodwin and Photoshop both teach that this is standard and useful. Motivation for the modification would be to allow the user more control over the selected ranges and brightness adjustments. Photoshop also clearly teaches that the user can adjust colors, transparency, brightness, and the like as does Goodwin as noted above.

Finally, if one examines page 213 of Photoshop where various selection lassos and areas are shown, it would be obvious (as shown in Photoshop Fig. 1-6) that the user can select a region, and then obviously changing the exposure value for that region alone would be equivalent to applying a Photoshop filter (pages 360-390) to it, so that different information (e.g. different luminance information (which is what is represented by exposure values)) would be shown, which therefore would render the claimed invention obvious.

As to claim 44, the means plus function language recited therein is moot for the following reasons: the claim is directed entirely to a software system, e.g. although the claim recites a computer-readable medium, software implements the apparatus and method, and as shown in the rejection to claim 14 below, which is incorporated by reference. Under *In re Alappat*, 33 F.3d 1526, 1540, 31 USPQ2d 1545, 1554 (Fed. Cir.

1994), the Federal Circuit held that means plus function language could not be ignored such that an apparatus claim is held to be synonymous with a process claim. However, in the case of pure software, this ruling does **not** apply, for the simple reason that any software that implements a method having the exact steps as recited as means in the means-plus-function claim would prima facie read on and anticipate or render obvious the means claims. Software is fundamentally nothing more than computer code, and there are an infinite number of ways that one of ordinary skill in the art could implement such computer code. Therefore, no additional limitations are brought into play by the invocation of 35 U.S.C. 112, sixth paragraph, and the claim is thusly rejected in the same manner as claim 1. (This rejection is a separate line of argument from the rejection under 35 U.S.C. 112 made previously).

Additionally, a computer inherently has a memory and processor (see fundamental work by Turing and Von Neumann from the 1950s to this point). Such a computer also has some kind of program directing it to operate (again, see work by Turing). Therefore, that portion of applicant's arguments is inapposite.

As to claim 2, prima facie Goodwin and Photoshop are graphical user interfaces.

As to claim 3, clearly Goodwin allows the user to adjust brightness in for example Figure 7 and similar parameters.

As to claim 4, Goodwin clearly teaches that the user takes in a single file having high dynamic range (Abstract and other locations), which clearly teaches all the limitations of this particular claim.

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As to claim 8, Photoshop clearly allows the user to flip, rotate, and otherwise geometrically manipulate images and regions of images, see for example page 267.

As to claim 9, Photoshop clearly teaches on page 267 that geometric transformations can be applied to portions of an image – e.g. rotate, scale, flip, effects, image size (zoom), et cetera. As an example, Figure 7-1 on page 268 clearly shows some of these changes, with the caption listing various transforms that have been applied to various portions of the shown images. Motivation and combination is taken from claim 1 and incorporated by reference.

As to claim 10, Photoshop (pages 453–457) teaches various blending methods that combine multiple layers in an image. Photoshop teaches that images are formed of various layers, in that each modification of an image can be done on a separate layer so that it can be rolled back, removed, or otherwise changed before the layers are finally merged or blended together. Clearly, as on page 61, the separate image could be on a separate layer and then be blended or combined with the main image as set forth on pages 453–457. Since only the primary reference is utilized, no separate motivation or combination is required and that from the rejection to the parent claim is herein incorporated by reference.

As to claim 14, as is shown in Photoshop Fig. 1.6 as cited above, it can prima facie have multiple images open simultaneously, and it would be prima facie obvious that when combined with HDRView, they could be all be HDR images. Further, repeating the steps of a process for multiple items (e.g. different images) is merely

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repeating a process, which according to *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960), is not a patentable distinction, as it does not produce a different result.

As to claim 15, it is *prima facie* a computer program, as is Adobe Photoshop. It is well known to one of ordinary skill in the art that a computer program available for download on a webpage is clearly a computer-readable medium, since a network server having such a file available for download must be storing it on a computer-readable medium. As such, this limitation is *prima facie* and trivially obvious, and also one of ordinary skill in the computer art would be aware that any such file could easily be downloaded onto computer-readable media (floppy disk, Zip drive, recordable / rewritable CD-ROM, et cetera).

As to claim 38, clearly Fig. 1.6 and the entirety of the Photoshop reference show a display device with output for visually displaying images, which are *prima facie* digital since they are stored on a computer and exist therein in digital format. Since only the primary reference is utilized, no separate motivation or combination is required and that from the rejection to the parent claim is herein incorporated by reference.

As to claim 40, *prima facie* Photoshop and Goodwin are GUI software, and thusly they *prima facie* contain a graphical user interface module. Motivation and combination is taken from the parent claim.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 1 above, and further in view of Inuiya (US 6,597,468 B1).

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As to claim 5,

Goodwin and Photoshop do not expressly teach that the digital information comes from a plurality of files. However, Inuiya clearly teaches in Figures 5 and 10 that multiple images may be used to capture high dynamic range information (4:45-65), where the tags contain the dynamic range information such that the system will be able to combine them (5:11-35) into one image, where the user may preview (5:45-6:25) the result and combine multiple wide-dynamic-range images, as in the case of Goodwin.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goodwin in view of Inuiya to allow the user to combine multiple images having different dynamic ranges that are of the same object to merge the images to generate the desired resultant image, since Goodwin allows the user to handle two different areas of an image with different dynamic ranges anyway, where when the two images were merged the user would be able to choose different regions to modify, and to generate a final output image as taught in Inuiya.

As to claim 6, Inuiya clearly teaches that the different images to be combined into one image have different dynamic ranges and are taken under different exposure conditions. Further, it is notoriously well known in the art of photography that the main way to create HDR images (see Debevec et al) is to take a series of images of the same scene under different exposure conditions and then to merge them. Therefore, by definition the HDR image so formed will have a wider range than that of the constituent base images.

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As to claim 7, as noted in the rejection to claim 7 above, clearly the images will have **different** dynamic ranges, because otherwise there would be no need to combine them as per Inuiya.

Claim 5 is rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 1 above, and further in view of Jyrinki (Timo Jyrinki, "High Dynamic Range Images", published on 4 July 2003).

As to claim 5, [Goodwin and Photoshop do not expressly teach these limitations] Jyrinki clearly discloses in section 2, pages 2-3, that an HDR image can be created utilizing a series of differently exposed photographs as shown in Fig. 1. Clearly, this constitutes having high dynamic range image information comprising multiple pixels. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the image manipulation of Goodwin and Photoshop with the multiple images of Jyrinki, as Jyrinki is a summary of techniques that are well known and commonly used in the art of HDR images, and this technique is clearly implemented by professionals and researchers in the field, and it would avoid having to merge all the smaller files into one large file, and would leave the original images available for examination and manipulation on their own.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop in view of Jyrinki as applied to claim 5 above, and further

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in view of Debevec et al (Debevec et al. " Recovering High Dynamic Range Radiance Maps from Photographs.").

As to claims 6 and 7, [Goodwin and Photoshop do expressly teach this limitation] Jyrinki clearly teaches in section 2, pages 2-3 that HDR images can be created from a series of differently exposed photographs so that enough information can be gathered to form the HDR image. This implies that each of the individual photographs at different exposures do not contain enough information per se to form the HDR image, and Jyrinki clearly draws this from the Debevec paper, and since Jyrinki incorporates that section of the paper, the motivation for combination with Debevec is thusly provided. Debevec teaches on pages 4-5, section 2.3, that multiple images must have overlap in the working range of the film, and further that the minimum number of photographs needed is $[R/F]$ where R is the range between the minimum and maximum radiance values to be recovered, and the film is capable of representing within its working range a dynamic range of F . Thusly and prima facie, each image will have less information and range than the final HDR product image as set forth above. As for the specific limitation of claim 7 that the plural images have different dynamic ranges, as stated by Debevec in section 2.3, the only requirement is that some portion of the dynamic range overlaps. Further, as stated on page two, section 1.1 of Debevec, image compositing involves images from different sources, e.g. a background matte from a still camera, live action with a different scanning program, and CG elements produced by rendering elements for combination purposes. Clearly the two images – one from a still camera – and the other from a live action film camera – would have different dynamic ranges, which

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renders that claim a trivially obvious variant. Motivation for combination with Debevec is already provided, and the motivation from claim 5 is herein incorporated by reference.

Claims 11 and 45 are rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 1 above, and further in view of Durand et al (Frédo Durand and Julie Dorsey, "Fast Bilateral Filtering for the Display of High-Dynamic-Range Images.")

As to claim 11, Goodwin and Photoshop do not expressly teach this limitation. Reference Durand teaches in section 2 (page 258) that tone-mapping parameters are varied across a local object (e.g. a region selected by the user or similar that has a different parameter than the background image), and further in section 4 on page 260, in the right columns, equations 9 and 10 provide a basis of equations to be solved to distribute a tone map across a local object or surface so that better distribution of color takes place, and clearly the tone map parameters can be varied by changing the coefficients in the equations (see for example sections 3.1 and 3.2 on pages 258-259). Therefore, those filtering techniques (see page 261 – section 5) clearly can be used to vary tone mappings across a surface. Now, clearly these constitute another class of filters that normally can be applied to HDR images. Clearly, Photoshop teaches that filters can be applied to objects, regions, and layers, and furthermore that external plug-ins and filters can be imported, such that the filters of Durand could be added to Photoshop in order to give it faster rendering compared to other techniques – in section 6.1 (page 263) Durand teaches that their techniques are much faster than previous

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methods, which would be an obvious motivation to combine with Photoshop – also the techniques of Durand are derivations and improvements on Gaussian blur techniques (section 1.1, page 258, sections 3.1 and 3.2, pages 259-260 among other locations), which would be obvious to augment Photoshop with, since Photoshop uses Gaussian blur filters (on page 364).

As to claim 45, the first additional limitation there is of image editing, whereas Photoshop is *prima facie* an image-editing program as set forth above in the various paragraphs in the rejection to claims 1 and 44 above, which is herein incorporated by reference in its entirety. The tone mapping limitation is taught in the rejection to claim 11 above, which is herein incorporated by reference in its entirety. Motivation and combination is taken from claim 11 above.

Claims 12 and 42 are rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 1, and further in view of Estrada et al (US PGPub 2003/0142126 A1).

As to claim 12, Goodwin and Photoshop do not expressly teach this limitation. It is trivially well known in the art to use cached parameters in order to speed up processing of images, and since the parent claim receives data (e.g. high dynamic range image) from somewhere, the techniques in Estrada that are designed to make images load faster (e.g. by storing certain parameters concerning them locally) are clearly relevant. Estrada teaches that images are cached and that their parameters are stored in a database such that even if the image is not cached *per se*, the parameters

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are cached in the database, such that they can be retrieved if necessary [0058].

Clearly, this technique would be relevant to the same problem solving area as applicant's work, as both are directed towards systems that retrieve and manipulate images and allow a user to browse one or more such images, and further as stated above the reliance on cached parameters is a standard technique in engineering and computer science that is known to speed up performance in almost any circumstances because it minimizes retrieval time and as such all of the above provides the motivation for combination and obviousness as set forth above.

As to claim 42, it is substantially the same as claim 12, the rejection to which is herein incorporated by reference, wherein as set forth in the rejection immediately above Estrada teaches that the images are stored in an image cache, which clearly meets the recited limitations of the claim. Motivation and combination is also taken from claim 12 above, which is appropriate given that the parent claim 37 is merely a broader version of the parent claim 1 for claim 12.

Claim 13 is rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 1 above, and further in view of Kurashige et al (US 6,219,459).

Goodwin and Photoshop do not expressly teach the limitation of this claim. Kurashige teaches a controller that allows the user to adjust parameters concerning the conversion of an input image to a linear drawing style in real-time (4:20-33). Clearly, the idea is very similar in concept to rendering languages and systems (such as

RenderMAN™ by Pixar™), which allow real-time control over image parameters as they are generated. Kurashige further teaches in 1:45-67 that the system allows for real-time processing of areas having large differences in contrast (e.g. light level, lamp light and shade are cited as one example). Clearly, the system of Kurashige would allow easier extraction of the region of interest, wherein such a region having a different exposure could then easily be transformed in real time. The Kurashige reference is clearly analogous art, as it is related to image processing, which Photoshop clearly performs as set forth in the previous examples.

Real-time control of graphical output is well known in the art, see for example Doerry et al (US 6,424,287 B1)(The system allows the user to make corrections to the data in real time in Fourier space, that is, to adjust the parameters for real-time visualization (4:8-35, 7:60-8:10 among other locations)), Azordegan et al (US 6,770,879, page 3, cols 5-35), Chun et al (US PGPub 2004/0184059 A1)(see [0003, 0029, 0051]), etc., all of which clearly relate to image processing and manipulating the output of graphical systems manually in real-time, which is clearly directed to the same problem-solving area as applicant. Motivation to combine is taken from the fact that real-time control allows the user instantaneous feedback on how the changes they are effecting change the results, which always allows the user more flexibility, particularly when it comes to graphical applications, this is prima facie obvious and well known in the art, and it would allow Photoshop to perform filtering operations in hardware at a much faster rate, and it would be much cheaper than other hardware accelerators, and allow many users to utilize it thereof (see Kurashige 4:20-33).

Claim 39 is rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 38 above, and further in view of Lofgren et al (US PGPub 2002/0154144 A1).

References Goodwin and Photoshop do not, per se, teach this limitation expressly. Reference Photoshop can prima facie (see Fig. 1.6 for example) open files and modify them to create 'derived images' and also rotate, flip, and otherwise manipulate images (see Photoshop page 267).

Reference Lofgren teaches that a user may create derivative images as shown in Fig. 2 and elaborated upon in [0039] using user terminal 18. Clearly, the user terminal or computer system 18 prima facie contains a derived image-constructing module implemented in software [0039]. The system of Lofgren teaches that digital watermarks are embedded into images in such a way as not to occlude their viewing or affect their visual context [0008-0011], so that owners of such images can control their use, distribution, security, classification, et cetera [0031, 0057]. Clearly, any image thusly processed can have such information embedded into it, e.g. images processed with Goodwin and Photoshop as set forth above. Clearly, the addition of such capabilities would improve the systems of Goodwin and Photoshop and provide obvious motivation for combination so that adequate controls over image classification, distribution, and the like, could be maintained.

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Claim 41 is rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin in view of Photoshop as applied to claim 37 above, and further in view of Fukuhara et al (US 6,546,144 B1).

References Goodwin and Photoshop do not in of themselves expressly suggest this particular limitation, although reference Photoshop does teach splitting an image into color channels on pages 61-62, such that each channel can be viewed separately. Fukuhara teaches in Fig. 8 for example the display of various thumbnails of images after the processing discussed in 2:25-35 wherein the image is split into bands, wherein an intermediate image is formed after the band processing and can be shown to the user as a thumbnail as in Fig. 8 (8:10-17). Clearly, this constitutes forming an intermediate image as recited in the claim. The thumbnails so generated would be useful in their own rights for obtaining a better understanding of the frequency content of the components of the overall image.

As set forth in Fukuhara 11:22-39, the system can generate intermediate images to facilitate compression of the original image for transmission and storage purposes, and it is obviously applicable to digital still images on digital still cameras as stated. Clearly, a system that allows for more effective compression and storage of images would clearly be desirable in combination with Goodwin and Photoshop because it would allow more images to be processed and stored for use with those programs; this is also trivially well known in the art. The thumbnails so generated would be useful in their own rights for obtaining a better understanding of the frequency content of the

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components of the overall image. Thusly, it would have been obvious to combine the images of Goodwin and Photoshop with the system of Fukuhara.

Claim 15 is rejected under 35 U.S.C. 103(a) as unpatentable over Goodwin and Photoshop as applied to claim 1 above, and further in view of HDRView.

As to claim 15, as can be seen in the HDRView reference directly, there is a link shown for "Files for Download" where the program can be downloaded. It is prima facie a computer program, as is Adobe Photoshop. It is well known to one of ordinary skill in the art that a computer program available for download on a webpage is clearly a computer-readable medium, since a network server having such a file available for download must be storing it on a computer-readable medium. As such, this limitation is prima facie and trivially obvious, and also one of ordinary skill in the computer art would be aware that any such file could easily be downloaded onto computer-readable media (floppy disk, Zip drive, recordable / rewritable CD-ROM, et cetera). Goodwin does not expressly teach this limitation, nor does Photoshop. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goodwin. Motivation for such a modification of Goodwin is found in HDRView in that it allows easier access to remote files and increases user convenience, see the HDRView documentation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 14 October 2005 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Woods

January 3, 2006

Ryan Yang, P.E.